THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH

66TH STREET AND YORK AVENUE
NEW YORK 21, N.Y.

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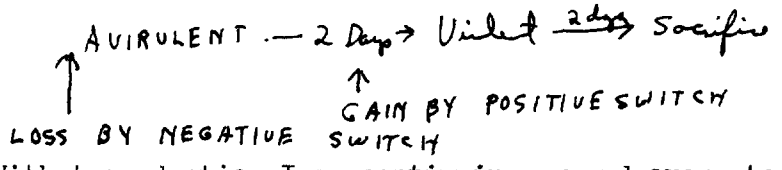
Dear Josh:

Received the set of reprint cards and after mailing will have fifty left which I should like to keep for special requests etc. Do you have any with covers, if so would trade you ten.

Stockers MS came in and I think it requires considerable contraction mainly as to wordage. Do you think my address should be as stated (UofW)? This is in truth where my contribution was made but might create difficulty with reprints later and also will not allow me to use Institute funds to buy reprints.

The mouse Salmonellosis model after some trial and tribulation seems to have straigtened out. We had some trouble for a while with an epizootic of pasteurellossis in our colony. The statistical difficulties in comparing two populations with skewed distribution was circumvented by the following. Frequency distributions were prepared for large numbers of data and one class was found which characterized the two different diets; 70% for one diet and 8% for the other . Using this as an estimate of our population parameter we set up binomials for various numbers of mice and found that with five mice we could, with little probability of error, readily tell the diets apart. This assay has verified our previous notions that a) feeding the protective diet one day before the infection was sufficient and b) there is little carry over of the material. The assay of course only gives a black or white answer but does allow for titration so that one can say that this amount is or is not as good as that in the natural material. Since the substance acts so fast but only when the animal has been presensitized by injection of avirulent cells it would seem that its action is on the immune response system of the animal thus it enhances what has been already set up. Might make it a real interesting material. We are now taking it down in fractions and have localized it in wheat germ which in turn is being further extracted

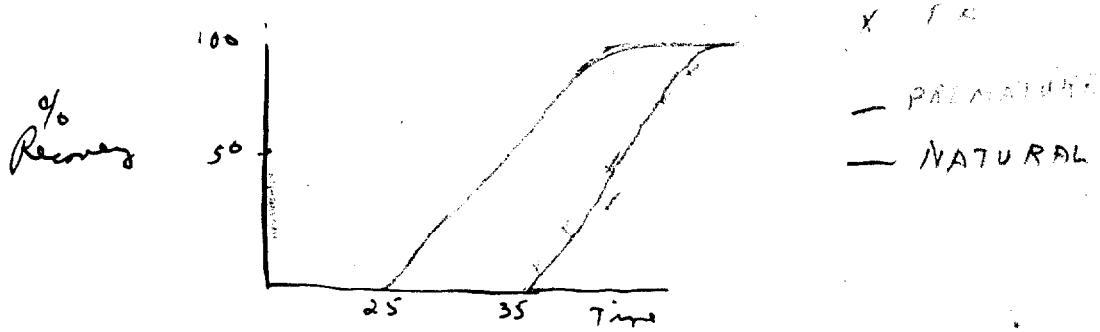


With transduction I am continuing my endeavors to find out what factors go into the efficiency of the reaction. Have titrated a mess of singles and they fall into two classes those at 10^6 to one and those at 10^7 to one. The values overlap strains and phage sensitivity. However, at least in the case of SW-191, lysogenicity (induced) causes a five fold loss in efficiency (from 2 X10^6 to 10^7). When transduced by 22V there is no further interference even with multiplicity and I've used this strain for some experiments which might tell us more about FA production. 22V has a latent period of about 35 minutes and a burst size of 200 with a long rise period. The question then arises if FA is distributed at random amongst phage bursts. I had the brilliant ? notion that if a) the efficiency of the proper particle producing its effect was greater than one over the burst size and b) FA for a character was not produced at random (Early introduction with replication) than we could get an estimate of the efficiency. Unfortunately then one fluctuation analysis* done (what an experiment) indicates FA randomization. If FA is produced random in space is it also in time?

LT-2 →

* 120 samples of 10^5 cells bursting

I have one experiment on this. (This kind of experimentation gives me the greatest of admiration for the phage workers who do such every day, sure is taxing). Using cyanide to prematurely lyse cells their contents were analysed. The percentage recovery of FA (new synthesis required as ~~xx~~ phage previously grown on A-) follows the curve of normal lysis indicating that only phage particles that are natural born have any activity associated with them. Certainly a surprising result and one that needs repetition as so far premature lysis and natural have had to be run separately. I think ~~xx~~ that by putting one sample in cyanide and one in chloroform I should be able to get the premature and natural lysis respectively simultaneously. The experiment certainly eliminates the ~~x~~ early incorporation hypothesi
* that I was toying with and had hoped to achieve FA concentration by collection of premature samples.



I might come out to Chicago next month for the Federation meetings and if so will come to Madison.

Best regards,

Sincerely,

Norton

* Labeling analysis of phage had shown (Evans) that early phage had a higher percentage of bacterial DNA. This is probably true but this DNA is broken down and resynthesized to phage genes. FA may not be the drug which is left when synthesis from ~~xx~~ exogenous sources begins, accounting for the little that is incorporated.